

## CLAIMS:

1. A color sequential projection system adapted to recycle light, comprising:  
a non-liquid crystal (LC) light-valve, which is optically coupled to a projection lens;  
a light recycling device, which reflects at least a portion of the light that is reflected by the light-valve back along a light path of the system, and to an imaging surface increasing the brightness of an image.
2. A projection system as recited in claim 1, wherein the light-valve is a digital micro-mirror device (DMD).
3. A projection system as recited in claim 2, wherein the DMD includes a plurality of reflective elements each having a respective axis about which the element rotates, and the DMD is oriented so light incident from the system is in a plane that is perpendicular to a plane of the axes.
4. A projection system as recited in claim 1, wherein the light recycling device includes a waveguide.
5. A projection system as recited in claim 4, wherein the waveguide has a reflective surface and an aperture on one end thereof.
6. A projection system as recited in claim 1, further comprising a color wheel disposed between the waveguide and a projection lens.
7. A projection system as recited in claim 1, further comprising at least one prism, which reflects light from the DMD back to the system.

8. A projection system as recited in claim 2, wherein a projection lens is offset relative to the DMD.

9. A projection system as recited in claim 2, wherein the DMD is tilted relative to a projection lens.

10. A method of recycling light in a color sequential projection system, the method comprising:

selectively reflecting a portion of light received from a non-liquid crystal light-valve back along a light path of the system; and transmitting at least a portion of the reflected light to an imaging surface increasing the brightness of an image.

11. A method as recited in claim 10, wherein the light-valve is a DMD.

12. A method as recited in claim 11, wherein the DMD includes a plurality of reflective elements each having an axis about which the element rotates, and the DMD is oriented so light incident from the system is in a plane that is perpendicular to a plane of the axes.

13. A method as recited in claim 10, wherein the light recycling device includes a waveguide.

14. A method as recited in claim 13, wherein the waveguide has a reflective surface and an aperture on one end thereof.

15. A method as recited in claim 13, further comprising a color wheel disposed between the waveguide and a projection lens.

16. A method as recited in claim 11, further comprising at least one prism, which reflects light from the DMD back to the system.

17. A method as recited in claim 11, wherein a projection lens is offset relative to the DMD.

18. A projection system as recited in claim 11, wherein the DMD is tilted relative to a projection lens.